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A new family of yeast genes implicated in ergosterol synthesis is related to the human oxysterol binding protein.

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We have identified three yeast genes, KES1, HES1 and OSH1, whose products show homology to the human oxysterol binding protein (OSBP). Mutations in these genes resulted in pleiotropic sterol-related phenotypes. These include tryptophan-transport defects and nystatin resistance, shown by double and triple mutants. In addition, mutant combinations showed small but apparently cumulative reductions in membrane ergosterol levels. The three yeast genes are also functionally related as overexpression of HES1 or KES1 alleviated the tryptophan-transport defect in kes1 delta or osh1 delta mutants, respectively. Our study implicates this new yeast gene family in ergosterol synthesis and provides comparative evidence of a role for human OSBP in cholesterol synthesis.

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